

REMARKS

Claims 1-2 and 5 are amended, claims 6-16 are canceled, and claims 17-27 are added; as a result, claims 1-5 and 17-27 are now pending in this application.

Claims 17-27 are new. Support for the new claims 17-27 can be found generally throughout the specification. Specifically, support for claims 17-27 can be found on page 4, line 13 through page 5, line 13, and on page 7, line 3 through page 8, line 4. Additional support for claims 24-27 can be found on page 5, lines 14-19, and on page 8, lines 13-28.

Objection to the Title

In a previous Office Action mailed September 8, 2004, the title was objected to as not being descriptive. The current Office Action on page 2 maintains the objection, stating, "The current title is not specific in which it still indicates the non-elected invention, which is a heat sink apparatus. The objection is hereby repeated." In response, Applicant has amended the title, and therefore respectfully submits that the objection has been overcome.

§102 Rejection of the Claims

Claims 1-2 and 4-5 were rejected under 35 U.S.C. § 102(b) as being anticipated by Baer (U.S. 5,070,933).

Claim 1 as amended now recites, "forming a metal conductive structure having a cavity." (emphasis added) In addition, claim 1 as amended now also recites, "injecting a plurality of non-phase changing spheres into the phase change material." Further, claim 2 as amended now recites, "forming a metal conductive structure having a cavity including a cavity surface having a plurality of ramp structures formed on the cavity surface." (emphasis added)

Baer concerns roof structures for regulation of temperature in environments experiencing extreme heat and daily temperature cycles between day and night. (See Baer, column 1, line 64 through column 2, line 42) Baer at column 3, lines 33-36 states, "As illustrated in FIG. 1, temperature regulator 1 comprises container 3, constructed using a material with a relatively low thermal conductivity and which is a poor conductor of heat, such as plastic." (emphasis added) Hence, Baer now fails to describe "forming a metal conductive structure" as recited in both claims 1 and 2, and thus fails to describe each of the elements of now amended claims 1 and 2.

Further, Baer at column 3, lines 51-58 states, "Returning to FIG. 1, the insulation is shown as comprising floating insulation elements or balls 7. Preferably these insulation elements are in the form of spheres, since it has been found that a spherical configuration permits the formation of a dense layer of insulation at the top of container 1, while providing the passageways necessary to allow the percolation of water through the insulation." Thus, Baer discloses floating insulation elements, but fails to describe non-phase change spheres injected into a phase change material, and so teaches away from "injecting a plurality of non-phase changing spheres into the phase change material" as recited in amended claim 1.

Therefore, Baer fails to describe each of the elements of now amended claims 1 and 2, and so the Office Action now fails to state a *prima facie* case of anticipation with respect to claims 1 and 2. Therefore, Applicant respectfully requests withdrawal of the rejection and reconsideration and allowance of claims 1 and 2.

Claims 3-5 are dependent on claim 1. For reasons analogous to those stated above and elements in the claims, the Office Action fails to state a *prima facie* case of anticipation with respect to claims 4 and 5. Therefore, Applicant respectfully requests withdrawal of the rejection and reconsideration and allowance of claims 3-5.

Claims 1-5 were rejected under 35 U.S.C. § 102(b) as being anticipated by Van Iperen *et al.* (U.S. 4,923,077).

As noted above, amended claims 1 and 2 each recite, "forming a metal conductive structure." Also as noted above, amended claim 1 now recites "injecting a plurality of non-phase changing spheres into the phase change material."

Van Iperen *et al.* concerns shipping packages utilized to protect thermolabile goods from degradation or destruction by surrounding the item to be protected from a heat in the environment that is outside the package. (See Van Iperen *et al.* at column 2, lines 59-68). Van Iperen *et al.* at column 5, lines 38-40 states, "As illustrated in FIGS. 1, 2 and 3 in which, like reference numerals refer to identical parts, the foldable modular heat sink includes plastic bottle 11 having an elongated rectangular cross section and a thickness indicated by T-T' in FIG. 3 of 3/8" to 1". Hence, Van Iperen *et al.* fails to describe "forming a metal conductive structure" as

recited in both claims 1 and 2, and thus fails to describe each of the elements of now amended claims 1 and 2.

Further, Van Iperen et al. at column 10, lines 4-13 recites,

This slurry may then be cast into any desired form, by weight of sodium and then cooled below 90.degree. F. to form sodium sulfate decahydrate, with evenly dispersed finely divided crystalline anhydrous sodium sulfate particles embedded therein. Nucleation agents are no longer necessary. The resulting composition is a hard white crystalline block of decahydrate salt and sodium sulfate crystals interlinked together by hydrogen bonding with long chain fumed silicon dioxide hydroxyl groups.

Thus, Van Iperen *et al.* fails to describe “injecting a plurality of non-phase changing spheres into the phase change material” as recited in amended claim 1. Therefore, the Office Action now fails to state a *prima facie* case of anticipation with respect to claims 1 and 2, and so Applicant respectfully requests withdrawal of the rejection and reconsideration and allowance of claims 1 and 2.

Claims 4 and 5 are dependent on claim 1. For reasons analogous to those stated above and elements in the claims, the Office Action fails to state a *prima facie* case of anticipation with respect to claims 4 and 5. Therefore, Applicant respectfully requests withdrawal of the rejection and reconsideration and allowance of claims 4 and 5.

§103 Rejection of the Claims

Claims 1-5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Van Iperen *et al.* (U.S. 4,923,077).

As noted above, amended claims 1 and 2 each recite, “forming a metal conductive structure.” (emphasis added) Further, claim 1 as amended recites, “injecting a plurality of non-phase changing spheres into the phase change material.” For reasons analogous to those stated above in regards to claims 1 and 2, Van Iperen *et al.* fails to describe or suggest “forming a metal conductive structure” as recited in claims 1 and 2, and fails to describe “injecting a plurality of non-phase changing spheres into the phase change material.” Since the Office Action cites no other document that describes these elements, the Office Action fails to disclose one or more prior art references that describe or suggest all the elements recited in claims 1 and 2.

New Claims 17-27

Claims 17-27 have been added by this amendment to the present patent application rejected. These new claims fall within the elected group of claims from the earlier Restriction Requirement, and contain limitations which distinguish over the art of record similar to amended claims 1-5. Consideration and allowance of these newly-presented claims is respectfully solicited.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6904 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this ____ day of June, 2005.

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